

# ON THE IDENTITY OF TWO TAXA OF *BERBERIS* (BERBERIDACEAE) FROM TIBET

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## ABSTRACT

The identity of two taxa of *Berberis*, *B. replicata* var. *dispar* and *B. griffithiana* var. *pallida* is discussed.

## RESUMEN

Se discute la identidad de dos taxa del género *Berberis*, *B. replicata* var. *dispar* y *B. griffithiana* var. *pallida*.

While examining type specimens of *Berberis* on loan from the British Museum (BM), the authors came across two sheets from Tibet, both annotated by C.M. Hu as *Berberis griffithiana* Schneid. var. *pallida* (Hk.f. & Th.) Chamberlain & Hu and were included in the systematic treatment of *Berberis* by Chamberlain & Hu (1985). Critical examination of these two type sheets revealed considerable differences between them. One sheet (Ludlow & Sherriff 1274) was annotated by Ahrendt as *B. replicata* W.W. Sm. var. *dispar* Ahrendt (Fig. 1), and the other sheet (Ludlow, Sherriff & Elliot 12518) annotated by Ahrendt as *B. atrocarpa* Schneid. var. *trimensis* Ahrendt (Fig. 2).

Chamberlain & Hu (1985) separated the two species, *Berberis replicata* and *B. griffithiana* as below:

- 1a. Leaves distinctly white below, dull green above, enervate, strongly revolute; shoots slender, terete ..... *B. replicata*
- 1b. Leaves glaucous below, not strongly revolute, with lateral veins visible and reticulate; shoots ± angled ..... *B. griffithiana*

Further examination of *L. & S. 1274* revealed all characters of *Berberis replicata* whereas *L. S. & E. 12518* clearly revealed the characters of *B. griffithiana*. Even Ahrendt (1961) had kept *B. replicata* var. *dispar* under *B. griffithiana* without citing this particular type specimen under this taxon.

Further, the study of floral characters reveals that the apices of the stamens are truncate with long connectives in *L. S. & E. 12518* while such character is not noticed in *L. & S. 1274*. The gland on the petals of *L. S. & E. 12518* are ovoid, 1.25 mm long, with rounded apices, whereas in *L. & S. 1274* the glands on the petals are distinctly ovate, much longer, and with acute apices.





FIG.1. Holotype of *Berberis replicata* var. *dispar* (Ludlow & Sherriff 1274, BM).

These characters clearly support the separation of these two taxa as distinct. The evidence suggests that Chamberlain & Hu (1985) were correct in reducing *B. taronensis* var. *trimensis* to a synonym of *B. griffithiana* var. *pallida*, but that *B. replicata* var. *dispar* is closer to var. *replicata* than it is to *B. griffithiana*.



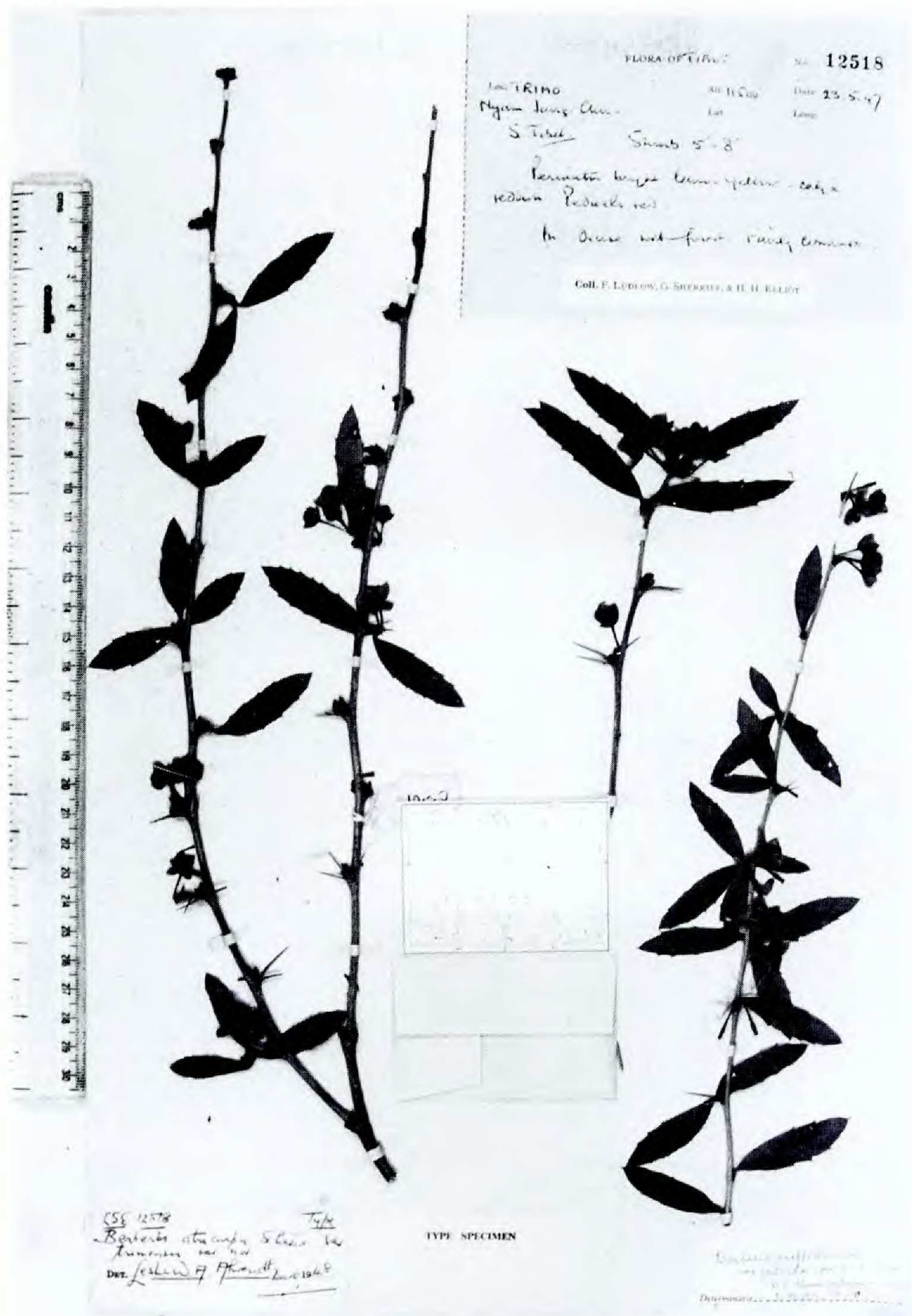


FIG.2. *Berberis griffithiana* var. *pallida* (Ludlow, Sherriff & Elliot 12518, BM).

Further, data through SEM studies of the epidermis of mature leaves of the two taxa also revealed significant differences (Fig. 3), supporting the above view. In case of *Berberis replicata* var. *dispar* (Fig. 3, A) the lower epidermal cells of leaves exhibited the convex nature of the periclinal wall cells, with more or less regular cell boundaries and smooth cuticle, whereas in case of



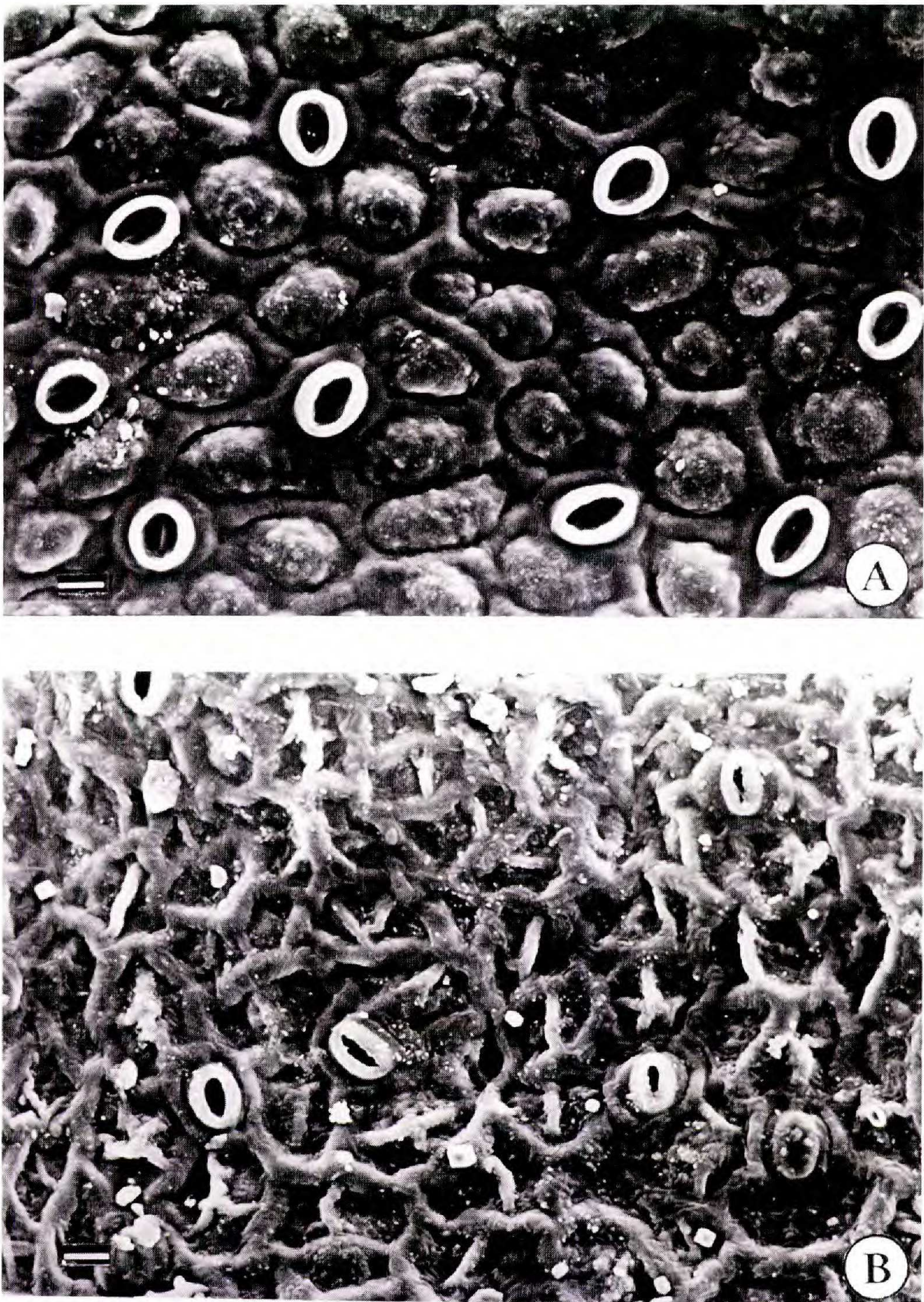


FIG. 3 Scanning electron micrographs of the abaxial surface of the leaf, (A) *Berberis replicata* var. *dispar* (Ludlow & Sherriff 1274, BM); (B) *Berberis griffithiana* var. *pallida* (Ludlow, Sherriff & Elliot 12518, BM). Bar = 10  $\mu$ m.

*B. griffithiana* var. *pallida* (Fig. 3, B) the periclinal wall cells are concave in nature, with irregular cell boundaries and the cuticle is more or less striate. The number of stomata also varied in the two species. The former with ten stomata in one field and the latter with six.



*Berberis replicata* var. *replicata*, *B. replicata* var. *dispar* and *B. griffithiana* var. *pallida* are separated by the morphological characters in Table 1.

Table 1. *Berberis replicata* var. *replicata*, *B. replicata* var. *dispar* and *B. griffithiana* var. *pallida* are separated by the morphological characters.

S. No.	<i>B. replicata</i> var. <i>replicata</i>	<i>B. replicata</i> var. <i>dispar</i>	<i>B. griffithiana</i> var. <i>pallida</i>
1.	Shoots slender, terete	Shoots slender, terete	Shoots angled
2.	Leaves white below, enervate, margin strongly revolute	Leaves white below, enervate, margin strongly revolute	Leaves grey below, with lateral veins clearly visible, margin not revolute
3.	Inflorescence usually 8–12 flowered	Inflorescence 2–6 flowered	Inflorescence 4–8 flowered
4.	Outer sepals 4 mm long, apices subacute	Outer sepals 4–5 mm long, apices acute	Outer sepals 5 mm long, apices rounded
5.	Glands on petals 0.5 mm long	Glands on petals 1.5–2 mm long	Glands on petals 1.2 mm long

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